

Attorney Docket: 060256-0262375  
Client Reference: T297070US/PAK/KOP



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TLR  
11/1/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of: PIIRAINEN      Confirmation Number: 6720  
Application No.: 09/355,623      Group Art Unit: 2682

Filed: October 5, 1999

Examiner: Tran, Tuan A.

Title: A TRANSMISSION METHOD IN A RADIO SYSTEM ADJUSTING  
TRANSMISSION MOMENTS

REQUEST FOR RECONSIDERATION

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Mail Stop Non-Fee Amendments  
Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated July 9, 2003, please reconsider the patentability of the pending claims based on the following remarks.

The Office Action rejected claims 1-11, 13-15, 16-27 and 29-33 under 35 U.S.C. §102(b) over Scott (U.S. Patent No. 6,094,421) and claims 12 and 28 under 35 U.S.C. §103(a) over Scott in view of Bjork et al. (U.S. Patent No. 6,084,862; hereafter "Bjork"). Applicant traverses the rejection because the cited prior art fails to disclose, teach or suggest all the features recited in the rejected claims. For example, the cited prior art fails to disclose, teach or suggest a transmission method used in a radio system including a base station comprising a **plurality of RF-heads**, the method comprising "commanding a first subscriber terminal to send the at least one base station a first signal using a **determined time slot** and a **determined carrier frequency**; commanding a second subscriber terminal to send the at least one base station a second signal using **the determined time slot** and **the determined carrier frequency simultaneously employed by the first subscriber terminal**; and commanding at least the second subscriber terminal to **adjust a transmission moment of the second signal within the determined time slot** so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot," as recited in independent claim 1 and its dependent claims. Similarly, the cited prior art fails to disclose teach or suggest a radio system including at least one base station comprising a

**plurality of RF heads** and a plurality of subscriber terminals, the radio system comprising “means for commanding a first subscriber terminal to send the at least one base station a first signal using **a determined time slot and a determined carrier frequency**; means for commanding a second subscriber terminal to send the at least one base station a second signal using **the determined time slot and the determined carrier frequency simultaneously employed by the first subscriber terminal**; and means for commanding at least the second subscriber terminal **to adjust a transmission moment of the second signal to be transmitted to the at least one base station within the determined time slot** so that the at least one base station receives the transmitted first and second signals at different moments within the same time slot.

Preliminarily, Applicant submits that the arguments presented in the “Response to Arguments” section of the July 9, 2003 Office Action are completely unfounded and erroneous. It is well understood in the art associated with Art Unit 2682 that a “time slot” is not a “frame” in accordance with GSM technology. Therefore, it is remarkable that the Office Action would assert that Applicant’s failure to specifically define what is meant when it refers to the term of art “time slot” allows the Office to broadly, and erroneously, apply the teachings of Scott to the claimed invention. The basic idea that a time slot is fundamentally different than a frame is even recognized in the applied reference Scott: “A time frame is divided into a plurality of time slots. . .” (Abstract) **There is no support for the Office’s position that time slots are the same as frames in the cited references or the prior art generally.** This is particularly true when the Examiner’s assertion that a time slot and frame are the same thing expressly contradicts the teachings of the prior art reference Scott.

Turning to the proper interpretation of the references, Scott teaches a method for minimizing guard periods between different time slots (as that term is expressly used in Scott itself). In the example depicted with the aid of Fig. 10B-10E of Scott, a first time slot (TS1) is reserved for the first user station M1 only, a second time slot (TS2) is reserved for the second user station only and a third time slot (TS3) is reserved for the third user station M3 only (see, column 23, line 24 to column 26, line 7). As illustrated in Fig. 10A, in each time slot, there are guard bands 1014 and 1018 (column 22, lines 43-48). **Thus, Scott actually teaches a method wherein every user is using a time slot of its own and time slots, and therefore users, are separated by guard periods.**

To the contrary, in GSM systems, guard periods are used to prevent so called “cross-talk” from one channel to an adjacent channel. In other words, guard periods are used to

prevent users transmissions from interfering with each other due to multi-path propagation. For example, according to GSM specification, in a normal burst, there are three tail bits in each end of the burst. These tail bits act as the guard period. At column 3 lines 36-47, Scott explains how, in GSM system, a frequency difference (45MHz) between uplink (i.e., transmission from a mobile station to a base station) and downlink (i.e., transmission from the base station to the mobile station) and a propagation delay due to the distance is compensated in traffic from the mobile to the base station. **However, any time adjustment used in Scott is for compensating a timing advance due to different distances of user equipment from the base station (see, column 26, lines 1-7).**

However, Scott fails to teach or suggest a method wherein several users use the same time slot. This concept is illustrated in Applicant's Fig. 5, in which different time slots are separated by guard periods placed in the end of each time slot 408, but **different users are not separated by guard periods within the same time slot**. Similar to Scott, in conventional TDMA-systems, only one user is using each time slot.

However, to the contrary, according to the claimed invention, a base station commands more than one subscriber terminal **to use the same time slot and frequency**. According to the claimed invention, the base station also commands at least one subscriber terminal **to adjust its transmission moment within a used time slot** so that the base station receives transmitted signals at different moments within the same time slot.

These claimed features are not disclosed, taught or suggested by Scott. Bjork fails to remedy the deficiencies of Scott because Bjork merely teaches signal correlating techniques. Thus, the combined teachings of Scott and Bjork to teach or suggest the invention as recited in claims 1 and 17 and their respective dependent claims. Accordingly, claims 1-33 are submitted to be allowable over the cited references for at least the reasons set forth above. Reconsideration and allowance of claims 1-33 is respectfully requested.

Furthermore, the Office Action asserted that a base station with multiple RF-heads is well known in the art. Applicant understands this assertion to be the Office's attempt to take "Official Notice" of that point. Applicant traverses this attempt to take "Official Notice" and formally requests that the Office provide an evidentiary basis for that attempt as well as some evidentiary basis for why one of ordinary skill in the art at the time the invention was made would employ multiple RF-heads for enhancing signal quality and extending coverage area in the devices and methods taught by Scott and Bjork.

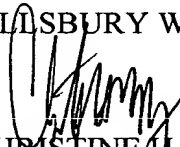
Thus, the rejections of claims 1-33 are traversed for the above-identified reasons and those claims are allowable over the teachings of the cited prior art.

All rejections and objections have been addressed. It is respectfully submitted that the present application is now in condition for allowance, and a notice to that effect is earnestly solicited. Should there be any questions or concerns regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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Attorney's Docket 060256-0262375  
Client Reference: T297070US/PAK/KOP



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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OLLI PIIRAINEN

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**AMENDMENT/RESPONSE TRANSMITTAL**

Transmitted herewith is an amendment/response for this application.

**FEES**

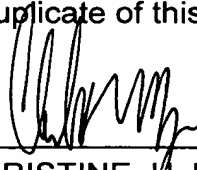
The fee for claims and extension of time (37 C.F.R. 1.16 and 1.17) has been calculated as shown below:

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE		ADDIT. FEE
TOTAL	33	-	33	=	0	X \$ 18.00 =	\$ 0.00
INDEP.	2	-	3	=	0	X \$ 86.00 =	\$ 0.00
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM						+ \$ 290.00 =	\$ 0.00
TOTAL ADDITIONAL CLAIM FEE							\$ 0.00
GRAND TOTAL							\$ 0.00

**FEE PAYMENT**

Authorization is hereby made to charge the amount of \$0.00 to Deposit Account No. 033975. Charge any additional fees required by this paper or credit any overpayment in the manner authorized above. A duplicate of this paper is attached.

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